

Ask the Dietitian November, 2020

Question: Should I be taking a probiotic; they seem to be everywhere.

Answer: Probiotics are found naturally in foods that have a fermentation process like yogurt, kimchi, sauerkraut, kefir and kombucha and are added to protein bars, tortilla chips and even cookies!

Probiotics are promoted as 'cures' for many conditions, especially if you are taking antibiotics. But is there really science behind the hype and are they safe for everyone to take?

The Food and Agricultural Organization of the United Nations, and the World Health Organization defined the term probiotic 20 years ago, as 'live microorganisms that, when administered in adequate amounts, confer a health benefit on the host'. These live microorganisms include bacteria and yeast.

The body is covered with bacteria and yeast, being most heavily populated in our large intestine. The gut bacteria, collectively called the Microbiome (or microbiota), weighs around 4lbs and can contain 1,000 different species of probiotic made up of thousand of billions of cells. That's a lot of lodgers that we play host to!

The composition of the microbiome is unique to the person, although bacterial species tend to run in families/communities, in other words we can share bacteria! We previously thought that a baby's gut was sterile before birth but that opinion has changed. However, if a baby arrives via natural childbirth, and are breast fed, they tend to 'inherit' their mother's strain of bacteria, and also the doctor that delivered it!

Your environment, family and friends and your *diet*, influence your microbiome. So, this 4lb living thing inside our gut is influenced by the life we lead and the friends we keep! Sounds like a bad science fiction movie, so let's move on to how those lodgers pay their rent!

Technically only strains of microorganisms with a scientifically demonstrated effect on health should be called probiotics. They manufacture vitamins for us, ferment carbohydrates that fuel colonic cells and maintain the integrity of our gut. They play a *major* role in our immune system, influence production of brain chemicals and gene expression. The more diverse your microbiome (lots of different bacteria) the more benefit you get from it.

However, emerging data show not everyone benefits from probiotics, and that any potential benefit is influenced by your own native microbiome. Additionally, probiotics are dietary supplements, therefore not regulated by the FDA.

In the cancer world, probiotics may **worsen** response to immunotherapies by interfering with immune checkpoint inhibitors (which basically allow cancer cells to be destroyed by your immune cells). In one study patients taking probiotics were 70% less likely to respond to their treatment. In addition, patients taking probiotics had lower bacterial diversity in their microbiome.

Taking probiotics can alter the 'native balance' in the gut. There appear to be two groups of people, 'persisters' and 'resisters'. Persisters show change to their native microbiome, while resisters did not. After antibiotics cleaned out the 'native' bacteria and allowed the probiotics to colonize, the new 'lodgers' prevented gene expression and the microbiome from returning to normal pre-antibiotic status, for months afterwards. For some people that might be good, but others not.

Positively, gut bacteria flourish when fed PRE-biotics, substances found in a plant based diet, vegetables, fruits and whole grains. These foods naturally pass thru their 'neighborhood' providing a meal that they like. A high fat, red meat and high sugar diet, not so much! In Africa people with the greatest diversity of microbiome eat up to 60 different types of produce and grains, they also have very low rates of many of our western diseases.

It seems historically predictable, that many diet trends, initially seen as the answer to all our problems, through us a curve ball as research reveals variables.

Bottom line: Probiotics are *not* a 'one size fits all'. If you are undergoing cancer treatment, have a compromised immune system, or bowel issues, discuss the use of these products with your specialist. The American Gastroenterological Association has new guidelines regarding specifics in patient populations. In the meantime, include natural probiotic foods in your diet, feed your bacteria PRE-biotics, fruits, vegetables and whole grains, they will flourish and be good lodgers!

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